

Notice of Allowability

Applicant(s)

09/888,559

Examiner

TUYEN T NGUYEN

Applicant(s)

SHIN ET AL.

Art Unit

2832

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 2/27/2004.
2. ☒ The allowed claim(s) is/are 1, 4-6 and 17-20 [renumbered 1-8].
3. ☒ The drawings filed on 20 August 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Cancel claims 7-16.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUYEN T NGUYEN whose telephone number is 571-272-1996. The examiner can normally be reached on M-F 8:30-6:30.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications ~~may be obtained from either Private PAIR or Public PAIR.~~ Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Claims 7-16 cancelled.

Claim 1 (Currently Amended): An inductor comprising: ~~a carbon nanotube and/or carbon nanofiber synthesized in a shape of a coil, wherein the carbon nanotube and/or carbon nanofiber is synthesized between catalysts fixed at desired locations on a substrate, and wherein the catalysts are transition metals or alloys of transition metal~~
a substrate;
a plurality of catalysts located on the substrate, wherein the catalysts include transition metals, and the catalysts comprise a plurality of crystal faces; and
carbon nanotubes and/or carbon nanofibers synthesized between the catalysts, wherein the carbon nanotubes and/or carbon nanofibers are grown on the crystal faces of the catalysts, the carbon nanotubes and/or carbon nanofibers being entangled with each other, thereby growing in a shape of a coil.

[Claims 2-3 (Cancelled)]

Claim 4 (Currently Amended): An inductor as claimed in claim 1, wherein each of the transition metal metals is one selected from the group consisting of iron (Fe), nickel (Ni), and cobalt (Co).

Claim 5 (Currently Amended): An inductor as claimed in claim 1, wherein the carbon nanotube and/or carbon nanofiber is nanotubes and/or carbon nanofibers are formed by one of a

thermal decomposition method, a catalyst thermal decomposition method, a plasma vapor deposition method, and a hot-filament vapor deposition method.

Claim 6 (Currently Amended): An inductor as claimed in claim 1, wherein the carbon nanotube and/or carbon nanofiber is nanotubes and/or carbon nanofibers are doped with elements such as phosphorus (P), boron (B), silicon (Si), and nitrogen (N).

Claim 17 (New): The inductor of claim 1, wherein a characteristic of adsorption of one of the crystal faces is different from the characteristic of adsorption of other crystal faces, and a growing speed of carbon on the crystal faces of the catalysts is controlled in accordance with the characteristic of adsorption of one or more of the crystal faces.

Claim 18 (New): The inductor of claim 17, wherein each of the transition metal is selected from the group consisting of iron (Fe), nickel (Ni), and cobalt (Co).

Claim 19 (New): The inductor of claim 17, wherein the carbon nanotubes are grown by a thermal decomposition process comprising:

- putting a powder of metal in a container;
- heating the container to a temperature between 680 °C and 1500 °C during an effective heating time; and

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injecting a mixture of an effective amount hydrogen per one minute and an effective amount of acetylene per one minute, and maintaining an appropriate hydrogen pressure and an appropriate acetylene pressure.

Claim 20 (New): The inductor of claim 19, wherein the heating time is 15 minutes, the hydrogen pressure is 48,000 Pascal and the acetylene pressure is 6,650 Pascal.
